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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/087,400 | 03/01/2002 | Anthony C. Bonora | ASYS8196US0 MEM/SDS | 6253 |

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| EXAMINER |
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BRAHAN, THOMAS J

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| | 3652 |

DATE MAILED: 12/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|------------------|-------------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/087,400 | BONORA ET AL. <i>SG</i> |
| | Examiner | Art Unit |
| | Thomas J. Braham | 3652 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 15 September 2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1,3-8,11,12 and 24-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1,3-8,11,13 and 24-26 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892) _____
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413) _____
Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). The specification fails to identify any elements as the z-drive housing or the radial drive housing. Appropriate correction is required.

2. The following is a quotation of the second paragraph of 35 U.S.C. § 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which applicant regards as his invention.

3. Claims 1, 3-8, 11-13, and 24-27 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. For example:

a. In claim 1, lines 16 and 17 the limitation "a z-axis drive assembly housed substantially within said elongated body, said z-axis drive assembly for moving vertically between a first position and a second position" is incomplete and inaccurate. As written, the limitation has the entire z-drive assembly moving. The drive assembly, as defined by applicant at the top of page 41 of the specification, has most of the assembly fixed in place, with only a portion of the ball screw (388) moving.

b. Claim 11 has a similar inaccurate limitation in the last four lines, as it recites that the radial drive assembly moves, when this drive assembly moves the end effector, not itself.

c. In claim 24, it is unclear as to what applicant is considering as a radial drive housing which does not intersect theta axis. As the housing is not mentioned in the specification, and appears to be the entire slide body (400), as the housing encloses all of the radial drive assembly, not just the motors, this housing appears to intersect the theta axis.

4. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

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5. Claims 1, 3-6, 11 and 25, as best understood, are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yaegashi et al in view of Ohtani et al. Figures 7 and 8 of Yaegashi et al show a wafer engine for moving semiconductor workpieces, comprising:

a support column (just above motor 74) having a first end, a second end and a longitudinal central axis;

a rotational drive (74) having a portion affixed to said first end of a support column for rotating the support column about the longitudinal central axis, the longitudinal central axis defining a substantially vertical theta axis;

a z-axis drive housing (92 or 93) including a base portion (plate 79 or just the bottom portion of whatever is considered as the housing) having a first end and a second end and an elongated body extending upward from the second end of the base portion, the first end of said base portion mounted to the second end of the support column such that the rotational drive rotates the z-axis drive housing about the theta axis;

a z-axis drive assembly (91) housed substantially within the elongated body, the z-axis drive assembly for moving vertically (to the same degree as applicant's assembly moves, as best understood) between a first position and a second position along a second linear path, the second linear path defining a substantially vertical z-axis that is offset from said theta axis; and

a radial drive housing (77) mounted to the z-axis drive assembly, the radial drive housing enclosing a radial drive assembly adapted to move an end effector (78a, 78b or 78c) between a first position and second position along a third linear path, the third linear path defining a radial axis.

Yaegashi et al varies from the claims by having the wafer engine fixedly mounted instead of having it mounted on a linearly moving carriage. Ohtani et al shows a similar wafer engine mounted on a linear track (31). It would have been obvious to one of ordinary skill in the art at the time the invention was made by applicant to modify the wafer engine of Yaegashi et al by mounting it on a carriage, as to have moving on a carriage for servicing more processing chambers, as taught by Ohtani et al. The rotational drive moves both the z-drive housing and the radial drive housing about the theta axis, as recited in claim 3. Adjacent the rotation drive is an exhaust device drawing air through the elongated body, including through its base portion (as the base portion is broadly defined) as recited in claims 4, 5, and 25 (note the claim 25 does not specify that air is drawn through all portions of the L-shaped housing. The radial drive housing of Yaegashi et al is inherently removable from the z-drive assembly, as recited in claim 6. The z-axis drive housing is L-shaped, as the housing includes it mounting plate (74), as recited in claim 11.

6. Claims 7 and 13, as best understood, are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yaegashi et al in view of Ohtani et al, as applied above to claims 1 and 11, and further in view of Hugues et al. Yaegashi et al, as modified, shows the basic claimed wafer engine, but varies from claims 7 and 13 by not having a tool from the list of an ID reader, a metrology tool, an aligner, a notch detector, an edge detector or a wafer marking tool on its radial drive housing. Hugues et al shows a similar wafer apparatus with alignment and

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monitoring sensors (111 and 113) on its end effector housing. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the end effectors of Yaegashi et al by providing their housings with sensors, to monitor the positioning of the wafers during conveying, as taught by Hugues et al.

7. Claims 8 and 26, as best understood, is rejected under 35 U.S.C. § 103(a) as being unpatentable over Yaegashi et al in view of Ohtani et al, as applied above to claim 1, and further in view of Solomon et al. Yaegashi et al, as modified, shows the basic claimed wafer engine, but from claim 8 because the fan unit (96) does not have a filter. Solomon et al shows a similar wafer apparatus with airflow through the gripper arms and having filters (170, 172). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the fan unit (96) of Yaegashi et al with a filter, to clean the air flow, as taught by Solomon et al.

8. Claim 24, as best understood, is rejected under 35 U.S.C. § 103(a) as being unpatentable over Yaegashi et al in view of Ohtani et al, as applied above to claim 1, and further in view of Nishi. Yaegashi et al, as modified, shows the basic claimed wafer engine, but from claim 24 as it does not show the drive means for the end effectors, as to have one of them in a housing offset from the theta axis. Figure 3 of Nishi shows a similar multiple end effector system (also by Tokyo Electrons) with the two drive assemblies mounted along the sides of body 56. It would have been obvious to one of ordinary skill in the art at the time the invention was made to mount some of the drive assemblies of the three end effectors of Yaegashi et al to the side of the housing, to minimize the height of their support body, as suggested and rendered obvious by Nishi.

9. Applicant's remarks in the amendment filed September 15, 2004 have been addressed in the detailed rejections above. An inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas J. Brahan whose telephone number is (703) 308-2568. The examiner's supervisor, Ms. Eileen Lillis, can be reached at (703) 308-3248. The fax number for all patent applications is (703) 872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Questions regarding access to the Private PAIR system, should be directed to the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


11/25/04
Thomas J. Brahan
Primary Examiner
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